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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/549,543

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Francois Lhermite

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1655

27255

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03/31/2008

SEMICONDUCTOR COMPONENTS INDUSTRIES, LLC

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EXAMINER

MOFFAT, JONATHAN

ART UNIT

PAPER NUMBER

2863

MAIL DATE

DELIVERY MODE

03/31/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/549,543

**Applicant(s)**

LHERMITE ET AL.

**Examiner**

JONATHAN MOFFAT

**Art Unit**

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1.

Claims 3, 6, 8-10, 16 and 18-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

With respect to claims 3, 6, 9-10 and 16 and as stated in the previous office action, the examiner is not certain how or why the feedback voltage signal is added to the input power signal. *The examiner further maintains that the specification provides insufficient support as to how or why one of ordinary skill in the art would use the claimed invention.* At first glance it would appear that, at the least, the units would be incorrect in such an addition. Figure 2 shows an adding component (92) but the power signal is not connected as an input nor is the feedback voltage signal. Further clarification is requested.

Claims 8 and 20 are also unclear. The claim discusses dividing an input power signal by the voltage feedback signal. Although this may be a valid calculation (resulting in a signal with units of current) *the examiner cannot ascertain how one of ordinary skill in the art would employ this feature in applicant's invention.* Figure 2 shows a dividing component (94) with the input power as one input. However, the other input is not the feedback voltage but an error signal

generated by comparing the feedback voltage to a reference voltage. Though this is known in the art, it does not appear to match up. Further clarification is requested.

Claims 18-19 are likewise unclear. The claims discuss comparing the input power signal to the feedback voltage. As stated above, this does not appear in the drawings and the examiner is uncertain as to how *one of ordinary skill in the art would utilize this concept in applicant's invention*. At first glance it would appear that, at the least, the units would be incorrect in such a comparison.

Further, claim 6 appears to be patently indistinguishable in scope from claim 9. As applicant has indicated in the response of 11/13/2007, claim 9 includes the language "to form a power feedback control signal" which is absent from claim 6. However, this language merely assigns a designation to a calculated value which is also calculated in claim 6. It appears to the examiner that both of these claims, in a simplified form, are adding together signals "A" and "B". Claim 9 labels this sum "C". However, the sum of claim 6 is identical to that of claim 9 despite being "unlabeled". Patentably, these claims are indistinct and therefore redundant.

The examiner's interpretations of these claims and these rejections are discussed further in response to applicant's arguments below.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**2.**

Claims 1-2, 5, 7, 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown (US pat 5481730) hereafter referred to as "Brown ('730)" in view of Brown (US pat 5726901) hereafter referred to as "Brown ('901)".

With respect to claim 1, Brown ('730) discloses a method comprising:

1) Determining an input voltage and current of a power supply system (column 1 lines 48-53 and column 2 lines 24-27 and 45-55).

2) Using the input voltage and current to regulate an output voltage of the power supply system to a desired value (column 1 lines 56-63 and column 2 lines 45-55).

With respect to claim 2, Brown ('730) discloses that PWM signals may be used to control a power switch of a power supply (column 5 lines 5-29) though this is not the preferred embodiment it would have been obvious to one of ordinary skill in the art.

With respect to claim 5, Brown ('730) discloses a method comprising:

1) Coupling the power supply controller to receive a first signal representative of an input voltage and a second signal representative of an input current (column 1 lines 48-53 and column 2 lines 24-27 and 45-55).

2) Coupling the power supply controller to receive a feedback signal representative of an output voltage (column 1 lines 48-53, column 2 lines 43-45 and column 3 lines 30-47 and column 4 lines 56-67).

3) Coupling the power supply controller to form drive pulses to regulate the output voltage responsively to the power signal and the feedback signal (column 1 lines 56-63 and column 5 lines 5-29).

With respect to claim 11, Brown ('730) discloses coupling the power supply controller to regulate the output voltage to a desired value (column 1 lines 56-63 and column 5 lines 5-29). Although Brown ('730) does not disclose a specific accuracy, one of ordinary skill in the art would be aware that it is desirable to increase the accuracy of such a regulation and that the intention is normally for the accuracy to be 0% error. Further, Brown ('730) discloses one embodiment as being an emergency shutdown (0V and 0A). It can be reasonably assumed that this device, when shutting down the output, is within 10% of 0V.

With respect to claim 15, Brown ('730) discloses an apparatus comprising:

1) A component coupled to receive a voltage representative of an input voltage and receive a current sense signal representative of an input current (column 1 lines 48-53 and column 2 lines 24-27 and 45-55).

2) A PWM controller of the power supply controller coupled to form drive pulses to regulate an output voltage (column 5 lines 5-29).

3) An error block of the power supply controller coupled to receive the power signal, a feedback signal, and the current sense signal and responsively control the PWM controller to

form the drive pulses (column 1 lines 56-63 and column 3 lines 30-47 and column 4 lines 56-67 and column 5 lines 5-29).

With respect to claims 1, 5, 7 and 15 Brown ('730) fails to specify that the power input is determined as a product of input current and input voltage. The examiner believes that, to one of ordinary skill in the art, it would have been obvious to multiply these input values together to get the input power and that it would have required no more than routine skill in the art. However, as additional evidence, the examiner relies upon a secondary reference.

Brown ('901) teaches, with respect to claims 1, 5, 7 and 15, monitoring input power to a power supply system (Fig 1) by multiplying input voltage and input current with a multiplier (Fig 1 "multiplier").

As stated above, the examiner believes that multiplying current and voltage to determine power would have been obvious to one of ordinary skill in the art based upon Brown ('730) alone. However, it further would have been obvious to one of ordinary skill in the art to combine Brown ('730) with the teachings of Brown ('901) by doing so. This is a well-known method of determining input power, which is useful for determining consumption by the device, efficiency of the supply, and other characteristics

3.

Claims 4, 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown ('730) and Brown ('901) as applied to claims 1, 5 and 15 above, and further in view of Stitch (US pat 5315533).

With respect to claims 4, 12 and 17, Brown ('730) and Brown ('910) fail to disclose brown-out detection and protection.

Stitch teaches, with respect to claims 4, 12 and 17, brown-out detection and protection (abstract and column 4 lines 8-23).

It would have been obvious to one of ordinary skill in the art to modify the method and apparatus of Brown and Brown by utilizing it for assured power delivery (brown-out prevention) as taught by Stitch. The “uninterruptible” power supply of Stitch is a common method of protecting computer resources (Stitch column 1 lines 20-40) such as that of Brown ('730) as shown in Figure 1.

4.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown ('730) and Brown ('901) as applied to claim 5 above, and further in view of Hall (US pat 5502370).

With respect to claim 14, Brown ('730) and Brown ('910) fail to disclose keeping the input power constant in an overload condition.

Hall teaches, with respect to claim 14, coupling the power supply controller to maintain input power substantially constant during an overload condition (abstract and column 1 lines 22-32).

It would have been obvious to one of ordinary skill in the art to modify the method and apparatus of Brown and Brown by monitoring and preventing power supply spikes by regulating the input power as taught by Hall. This is beneficial according to Hall (column 1 lines 33-45) and additionally for preventing damage to the system due to power surge.



5.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown ('730) and Brown ('901) as applied to claim 5 above, and further in view of Kinghorn (US pat pub 20020071301).

With respect to claim 13, Brown ('730) and Brown ('901) fail to disclose generating a haversine form control signal.

Kinghorn teaches, with respect to claim 13, generating a haversine form control waveform (paragraphs 0048, 0052, 0074).

It would have been obvious to one of ordinary skill in the art to modify the method of Brown ('730) and Brown ('901) by using a haversine waveform as taught by Kinghorn. The use of a lookup table is a fast way of determining an output value. Further, this insures unity of phase between the input and output signals and reduces required components (Kinghorn paragraph 0074).

#### ***Response to Arguments***

Applicant's arguments filed 2/26/2008, have been fully considered but they are not persuasive.

On pages 8-11 of the arguments, applicant addressed the rejection claims 3, 6, 8-10, 16 and 18-20 under 35 USC 112 first paragraph.

Applicant argues that page 6, line 15 - page 7 line 18, and page 13 lines 2-12 provide an "explanation as to how and/or why the feedback voltage signal is added to the input power signal." It appears to the examiner that these cited portions are not directed to this topic at all and examiner is not able to locate a 13<sup>th</sup> page in applicant's specification. The cited portion of

pages 6-7 mention the use of a particular input pin on a chip. In response to applicant's arguments as a whole, however, the examiner points out that the question here for enablement purposes is not "how" or "why" one adds two signals. Applicant points out that one of ordinary skill in the art would understand how to add two electrical signals and the examiner agrees with this statement. However, the rejection is directed to the fact that a) the drawings do not show this feature, and b) more importantly, the disclosure does not provide one of ordinary skill in the art with a utility or way to use this summation. To quote the classic example, a description may enable the assembly of an assortment of gears and springs, but if no use, purpose, or application is given (the arrangement or order of the parts is seemingly random or arbitrary), one of ordinary skill in the art would still find the disclosure lacking in enablement.

With respect to claims 8 and 20 and 18-19, the examiner previously argued that one of ordinary skill in the art is not provided with sufficient description in order to make use of these features and further that these features do not appear in the drawings. The examiner further pointed out that it would be unclear to one of ordinary skill in the art what contribution these elements would have to the invention even if sufficiently enabled. In response, applicant states that "The elements are integral to the invention because they are called for by claims 8 and 20" and that "Applicant's specification bears at least a reasonable correlation to the scope of the claims." (page 10 2<sup>nd</sup> paragraph). As in the previous paragraph, without adequate disclosure, the claimed features not only lack enablement but also are somewhat arbitrary. Clearly these claims refer to material from the specification as applicant states, but merely stating that these components exist does not necessarily provide adequate disclosure, as stated above. In this case, the examiner believes that one of ordinary skill in the art, given applicant's disclosure, would not

find sufficient information as to understand how to use these claimed features and what purpose they serve in the context of the invention as a whole (i.e. how they contribute and are critical).

With respect to claims 6 and 9, the applicant argues that the scope of the claims are distinct, pointing out that claim 9 includes "a power factor feedback signal". The examiner agrees that claim 6 does not include this language, but respectfully disagrees that the claims differ in scope. It appears to the examiner that this is merely a question of naming convention. Claim 6 creates an unnamed signal which is a sum of the feedback signal and the power signal. Claim 9 also creates a sum of the feedback signal with the power signal but calls this sum "a power feedback control signal". Whether it is referred to as a "power feedback control signal" or a generic signal makes no difference as the signals are the same. Applicant is given free reign to be his own lexicographer, but the scope of the language of the claim is not inherently altered by this. A good analogy would be if one were to solder a resistor to a capacitor. Whether this is referred to as "a filtering circuit", "a circuit", "a resistor/capacitor multi-circuit", or no name at all makes no difference as the arrangement of components remains the same.

On pages 12-15 of applicant's arguments, the rejection of claims over Brown ('730) in view of Brown ('901) is addressed. Applicant argues that Brown ('730) fails to disclose calculating an input power signal and that Brown even teaches away from such a signal as it is disclosed in Brown that input voltage and current are all that is required for monitoring and regulating the supplied power. The examiner agrees that Brown ('730) fails to disclose calculating an input power signal but respectfully disagrees that this reference teaches away from such a calculation. Although the Brown ('730) patent is indeed fully functional without

modification, it would be improper to say that this makes it beyond modification. To do so would essentially invalidate the legal basis of 35 USC 103 as a whole.

The examiner agrees that Brown ('730) does not disclose an input power calculation but, as the claims are rejected under the aforementioned 35 USC 103, Brown ('730) is not required to do so. Further, the examiner does not rely on Brown ('901) to teach that Brown ('730) is only usable with an input power calculation, but that one of ordinary skill in the art would have found applicant's invention as a whole, obvious in view of these two disclosures and ordinary knowledge in the art as outlined in 35 USC 103.

With respect to motivation for such a modification (essentially comprising multiplying the voltage and current input signals and using this product, at least in addition to the voltage and current signals to regulate the output values of the supply), the examiner presented reasoning applicable to one of ordinary skill in the art in the previous office action. Further Brown ('901) presents the motivation of monitoring total energy used by a system from a supply-side concern and further regulation consistency (column 1 lines 26-39 and 54-58).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN MOFFAT whose telephone number is (571)272-2255. The examiner can normally be reached on Mon-Fri, from 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/jm/  
JM  
3/27/2008

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